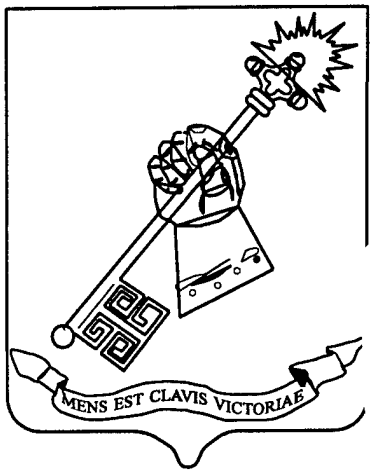
BATTLE STAFF INTEGRATION: THE KEY TO BATTLE-TRACKING IN BATTALION COMMAND POSTS

A Monograph
By
Major Gary G. Sauer
Infantry



School of Advanced Military Studies
United States Army Command and General Staff College
Fort Leavenworth, Kansas

First Term AY 95-96

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	28 NOV 95	MONOGRAPH

4. TITLE AND SUBTITLE
BATTLE STAFF INTEGRATION: THE KEY TO BATTLE TRACKING IN BATTALION COMMAND POSTS

5. FUNDING NUMBERS

6. AUTHOR(S)
LTC GARY GLEN SAUER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
School of Advanced Military Studies
Command and General Staff College
Fort Leavenworth, Kansas 66027

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
Command and General Staff College
Fort Leavenworth, Kansas 66027

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION/AVAILABILITY STATEMENT
APPROVED FOR PUBLIC RELEASE:
DISTRIBUTION UNLIMITED.

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*

SEE ATTACHED

14. SUBJECT TERMS
BATTLE TRACKING, STAFF INTEGRATION, TEAMWORK, BATTLE STAFF INFORMATION MANAGEMENT

15. NUMBER OF PAGES
57

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNLIMITED

ABSTRACT

BATTLE STAFF INTEGRATION: THE KEY TO BATTLE-TRACKING IN BATTALION COMMAND POSTS by MAJ. Gary G. Sauer, USA, 57 pages.

This monograph examines the problem of battle tracking within the battalion command post. Effective battle tracking enables the battle staff to appraise the current battlefield and forecast the future battlefield for the command. Battle tracking is achieved by the integration of the staff through teamwork and an interactive flow of information within the command post. Effective battle tracking creates greater mutual situational awareness for the commander and staff and thus reduces the amount of uncertainty when making decisions in the execution of tactical operations. The commander can then focus combat power effectively to accomplish assigned missions.

Staff integration offers a solution to the problem of inefficient battle tracking. Through the propagation of staff integration over time, a staff will develop cohesion, an interactive flow of information and the capability of sharing images of the battlefield. These capabilities enable the battle staff to attain mutual situational awareness of the battlefield and the ability to track the execution of tactical operations effectively. Thus, by achieving integration the battle staff is able to achieve unity of action and reduce uncertainty for the commander during the execution of tactical operations.

OFFICE OF THE UNDER SECRETARY OF DEFENSE (ACQUISITION & TECHNOLOGY)
DEFENSE TECHNICAL INFORMATION CENTER
8725 JOHN J KINGMAN RD STE 0944
FT BELVOIR VA 22060-6218

IN REPLY REFER TO

DTC-OMI

18 JUN 96

SUBJECT: Reproducibility of Report

To:
COMBINED ARMS RESEARCH LIBRARY
ATTN: ATZL SWS L (CATALOGING)
COMDT USACGSC
250 GIBBON AVENUE
FT LEAVENWORTH KS 66027-2314

1. Thank you for your document contribution to the Defense Technical Information Center. Unfortunately, due to the poor image quality of the enclosed report(s), we cannot produce microfiche from which readable facsimiles of the report can be made. This prevents us from providing maximum support to the RDT&E effort of the Department of Defense.

2. If you can furnish us with a better copy, one providing solid images with good black and white contrast, we will be able to reproduce it fully and provide copies to requesters. If a better retentioncopy is not available, we would appreciate being forwarded a loan copy from which we could produce microfiche. We will return it promptly after processing.

FOR THE ADMINISTRATOR:

Crystal Riley

CRYSTAL RILEY
Chief, Input Support Branch

Encl

Please find 2 copies of good quality enclosed. You may retain them.

FL-181
Dec 95

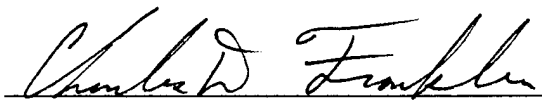
SCHOOL OF ADVANCED MILITARY STUDIES

MONOGRAPH APPROVAL

Major Gary G. Sauer

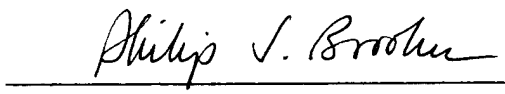
Title of Monograph: Battle Staff Integration: The Key to Battle-Tracking in Battalion Command Posts

Approved by:



LTC Charles D. Franklin, MBA, MMAS — Monograph Director

COL Danny M. Davis, MA, MMAS — Director, School of Advanced Military Studies



Philip J. Brookes, Ph. D. — Director, Graduate Degrees Program

Accepted this 14th Day of December 1995

ABSTRACT

BATTLE STAFF INTEGRATION: THE KEY TO BATTLE-TRACKING IN BATTALION COMMAND POSTS by MAJ. Gary G. Sauer, USA, 57 pages.

This monograph examines the problem of battle tracking within the battalion command post. Effective battle tracking enables the battle staff to appraise the current battlefield and forecast the future battlefield for the command. Battle tracking is achieved by the integration of the staff through teamwork and an interactive flow of information within the command post. Effective battle tracking creates greater mutual situational awareness for the commander and staff and thus reduces the amount of uncertainty when making decisions in the execution of tactical operations. The commander can then focus combat power effectively to accomplish assigned missions.

Staff integration offers a solution to the problem of inefficient battle tracking. Through the propagation of staff integration over time, a staff will develop cohesion, an interactive flow of information and the capability of sharing images of the battlefield. These capabilities enable the battle staff to attain mutual situational awareness of the battlefield and the ability to track the execution of tactical operations effectively. Thus, by achieving integration the battle staff is able to achieve unity of action and reduce uncertainty for the commander during the execution of tactical operations.

TABLE OF CONTENTS

The complexity of the modern battlefield requires the commander to exercise command by visualizing the battlefield. The battle staff is that element within the organization which helps the commander create and refine the battlefield image. The staff accomplishes this task by processing, analyzing and monitoring the incoming flow of information into the command post. As the image is developed and shared by the commander and staff, it becomes the common reference point from which mutual situational awareness of the battlefield is achieved. Thus, the information provided by the staff and the image of the battlefield which it creates, enables the commander to see the battlefield and make decisions which ensure mission success.

Throughout modern history command posts have served as the focal point for unit command and control. Today's army is no different. Battalion command posts track and display battlefield data to plan for and conduct tactical operations. The data analyzed and displayed by the staff is critical to the commander for decision making and focusing combat power. This process of monitoring information received is known as battle-tracking. Observations and lessons-learned collected and synthesized by the Center for Army Lessons Learned (CALL) reveal a significant deficiency in the ability of battle staffs to synthesize and monitor battlefield information during mission execution. For example, in 1992 during 163 separate missions conducted at the National Training Center, battle staffs were found to have significant information flow problems over 70% of the time. This information is used by the commander to develop patterns and devise a coherent awareness or "picture" of the battlefield. When a commander is provided incomplete and inaccurate information , he develops a less coherent awareness or "snapshot" of the battlefield. Hence, the commander executes the fight from a "snap shot" as opposed to a "picture of the

battlefield". From this view of the battlefield the commander cannot focus combat power nor acquire the necessary leverage to achieve tactical success.

The complexity of the modern battlefield requires that "staffs have the ability to acquire , process and understand the complex and often confusing information flowing in from various sources"[2] in order to develop the commander's image of the battlefield. Since each member of the battle staff receives information through their respective functional operating system, this flow of information must be interactive. "Because no information can be understood apart from its contextual frame, the value of any particular piece of information cannot be determined out of context".[3] Thus, the sharing and integrating of information in a relatively continuous exchange among staff members facilitates interactive information flow and image resolution of the current battlefield.

The battle staff and its ability to integrate as a team in the command post is the key to effective command and control. Effective staff integration insures that critical information received in the command post is shared and analyzed across functions as opposed to being stove-piped into the functional battlefield operating systems. This cross fertilization of information by the battle staff refines the commander's image of the battlefield and gives him the ability to reduce the level of uncertainty confronting him in an already complex environment.

Today, battle staffs are faced with the challenge of receiving, analyzing and monitoring a magnitude of information from which they are expected to develop a common relative picture of the battlefield for the commander. Previous studies and monographs have addressed this issue as an information management problem with emphasis on information overload. Specifically, these studies evaluated the types of

information to be monitored and recommended a list of commander's critical information requirements (CCIR). CCIR were presented as a mechanism through which information could be filtered by the staff to reduce information overload and enhance the staff's ability to battle track tactical operations. Although these lists were insightful, they lacked consensus and did little to solve this dilemma. Thus, ineffective battle tracking continues to plague tactical command posts within our force to this day.

The purpose of this monograph is to examine this problem of battle tracking within the battalion command post. Effective battle tracking enables the batttle staff to appraise the current battlefield and forecast the future battlefield for the command. Battle tracking is achieved by the integration of the staff through teamwork and an interactive flow of information within the command post. Effective battle tracking creates greater mutual situational awareness for the commander and staff and thus reduces the amount of uncertainty when making decisions in the execution of tactical operations. The commander can then focus combat power effectively to accomplish assigned missions. Greater than 70% of the Army's tactical units observed at the combat training centers are ineffective in tracking the battle. This trend has spanned a period of five years without resolution. So why do tactical units continue to have this deficiency? This monograph will answer this question by considering the concepts of integration and interactive information flow as areas which consistently remain weak within the battle staff and contribute to this dilemma.

This monograph begins by examining the battle staff organizational structure in Section II. This section includes a doctrinal review of the staff roles and functions performed within the command post. The proper integration of these functions by the battle staff "facilitates unity of action , not only within the staff, but also among the several

commanders ... throughout the chain of command."[4] This section also assesses the adequacy of today's battle staff doctrine by considering additional roles and functions identified in research studies but not covered by current doctrine.

Section III examines the battle staff information management process. This section focuses on the importance and purpose of interactive information flow among battle staff members. It establishes the critical link between interactive information flow and the ultimate use of the information received... developing "the battlefield picture."

Section IV presents the concept of battle tracking. Battle tracking is a command and control mechanism used to develop and refine a shared image of the battlefield among the commander and staff. Combat training center observations from the National Training Center (NTC) and the Joint Readiness Training Center (JRTC), identifing battle tracking as an operating deficiency, are introduced to illustrate observed shortcomings of battle staffs during the execution of tactical missions. Finally, the implications of inefficient battle tracking are presented to serve as the basis for the introduction of battle staff integration in Section V.

Section V identifies staff integration and the role it plays in battle tracking and the execution of tactical operations. The concept of battle staff integration was developed by Dr. Joseph Olmstead in a research study entitled Battle Staff Integration for the Institute for Defense Analysis. Battle staff integration is closely associated with , if not identical to what Dr. Olmstead calls teamness.[5] This study examines the concept of melding structure and function with the notion of functional competence to create staff integration. Dr. Olmstead defines integration "as that force which melds together roles , attitudes and activities of the staff members."[6] Section V examines this concept and establishes

teamwork, cohesion and competence of the battle staff as the basis for the introduction of the integration model for developing and directing an effective battle staff. Finally, this section identifies some common implications of efficient staff integration as a basis for doctrinal and organizational analysis in Section VI.

Command posts frequently are caught unprepared to address current tactical situations on the battlefield due to the lack of staff integration and interactive information sharing of critical information. Consequently, key information is overlooked and the recognition of emerging emergency situations lags behind the impact of the actual events. This organizational dysfunctionality prevents the staff from accurately tracking the battle as well as developing and refining any shared image of the battlefield with the commander. Section VI summarizes this linkage between battle tracking and staff integration in order to establish the foundation for analysis of current command and control doctrine. Finally, this section concludes the monograph with a review of those shortcomings in both organizational training and doctrine for command control at the tactical level which contribute to this problem.

ASSUMPTIONS

This monograph is based on a number of assumptions. First, that the organizational structure of the battle staff will not change. Second, advances in command and control technology will continue to impact on the battle staff's ability to manage information. Third, based on the force drawdown and realignment of forces personnel turbulence will continue to challenge battle staff cohesion. Fourth, human interaction within the battle staff is a natural facet of command post operations and will remain so even with the introduction of new command and control technologies.

SCOPE

This monograph examines staff operations at the battalion level. Specifically, the focus of this document is on the third element of battle command, the organization. It considers the interactive process of the staff and the information it manages in developing a shared image of the battlefield. The monograph employs a general systems approach to analyze this process. Systems thinking examines the linkages and inter-relationships among component elements to gain a better understanding of the environment as a whole. The objective is to offer a solution to this battle command issue in order to assist staffs and commanders in developing that mutual situational awareness necessary for focusing combat power decisively on the modern battlefield.

II THE BATTLE STAFF

This section examines the organizational structure, roles and functions of the battle staff. This explanation serves as a foundation upon which the problem of battle tracking within tactical command posts can be analyzed by this monograph. Additionally, the concept of teamwork is introduced as a common staff function necessary for integration and effective command post operations.

ORGANIZATION

The term "battle staff" is not a doctrinal term. However, this term has become part of the Army's universal language. It describes the command post element which collectively assists the commander in visualizing the battlefield. "About 50 years ago, General Bronsart von Schellendorff, of the German Great General Staff, in his classic treatise on staff organization and functioning defined the staff as the assistants of the commander."[7] As part of a military organization, the battle staff is a "structure intended to function effectively in emergency situations."[8] This is especially true for today's battalion command post staff whose operating conditions are characterized by constantly changing tactical situations within a complex enviroment.

The staff organization is designed to assist the commander in exercising command and control on the battlefield. To accomplish this, the staff consists of personnel which perform a variety of command, control and support functions. FM 101-5 establishes the doctrinal organization of staffs. It is a functional organization featuring a bureaucratic top down and then bottom-up flow of information.[9] At battalion level the basic structure of the organization consists of the executive officer, personal staff, coordinating staff and special staff elements.

The executive officer (XO) is second in command and serves as the battalion chief of staff. This officer directs and supervises the staff in the execution of their duties and must be prepared to assume the duties of commander at any time. As a trainer, the executive officer trains the primary and special staff officers as well as the company executive officers. Finally, the XO is "traditionally the battalion's material readiness officer and most visible point of contact for logistical matters."[10]

The personal staff of the commander in a battalion is composed of the command sergeant major, chaplain and staff judge advocate. The sergeant major is the senior non-commissioned officer within the organization. He provides the commander with an open channel of communication with the company senior non-commisssioned officers and soldiers. The battalion chaplain provides spiritual guidance to the unit. The chaplain and unit ministry teams provide pastoral care to all soldiers, particularly those who have become casualities. The staff judge advocate advises the commander on legal issues and the law of land warfare. These operational legal services increase the operational effectiveness of the unit by ensuring its lawful employment.

The special staff consists of "the specialists serving as technical advisors and may include communications -electronics officer, maintenance officer, motor officer and other officers depending upon unit mission."[11] These staff members provide the commander with technical and functional area expertise necessary for executing sound command decisions. Although not part of the coordinating staff element, the special staff is often incorporated into the coordinating staff element because of the common functions performed by both in the command post.

"Coordinating staff officers are the commander's principal staff assistants."[12] The coordinating staff includes the personnel officer (S-1), intelligence officer (S-2), operations officer (S-3), logistics officer (S-4) and when authorized the civil-military officer (S-5). Each coordinating staff member is responsible for their respective functional battlefield operating system when conducting activities of the command. "Collectively, they have responsibility for the commander's entire field of responsibilities, except those functional areas that the commander decides to control personally or areas that are reserved by law or regulation for specific staff officers."[13] These officers make up the coordinating staff which serves as the principal advisory group to the commander.

Current doctrine does not address the other members of the battle staff who represent the remaining functional areas of the battlefield operating systems within the battle staff structure. The ommitted members are the fire support officer (FSO), Air Force liaison officer (ALO), Naval Gun Fire liaison officer (NGLO), engineer officer, air defense officer, chemical officer, and when authorized the psychological operations and civil affairs officers. Emerging doctrine FM 101-5 (Draft) addresses these staff members under the heading of special staff with coordinating staff responsibility.

The personal, special and coordinating staff officers are assisted by other officers, non-commisioned officers and enlisted soldiers within the command post. For example, one of the several officers within the S-3 section is often assigned the responsibility of command post battle captain. This officer assists the executive officer in the synchronization and integration of all battle staff members. It is interesting to note at this point, that this staff position within the command post organization is not found in any

doctrinal manual. It is; however, successfully incorporated by most units and is endorsed by the Army's combat training centers and battle command battle lab.

The composition of each staff section varies based on unit type and mission. Regardless of size or composition, individual members of each section actively perform problem solving and decisionmaking activities to assist the commander in focusing combat power. "Due to the necessity for global organizational responses it is useful to conceive of the staff as a problem solving and decision making unit."[14] In the complex environment of the modern battlefield, battle staff members are severely limited in their ability to operate individually. By operating as an organization, the battle staff is able to "analyze situations more understandably and consequently, develop a more effective means of manipulating environments to accomplish assigned missions."[15] Finally in order for the battle staff to be an effective organization, it is essential that each member of the battle staff be integrated into a command post team when performing staff functions.

FUNCTIONS AND RESPONSIBILITIES

" Members of the battle staff are responsible for performing all functions needed to provide direction to the unit and to maintain unit activities at high levels of effectiveness."[16] FM 101-5 Staff Organization and Operations, describes the functions and responsibilities of individual staff members. It outlines these functions under the two separate categories of individual and common.

The individual functions and responsibilities for the tactical staff are described by FM 101-5 as "generally the same as those for higher staffs."[17] " Within staff functional areas, corresponding staff officers at each level will have similiar areas of interest and responsibilities."[18] This underlying premise lays the foundation for the doctrinal description

of all the individual staff functions as being nothing more than those of their respective counterparts on the general staff. For example, the individual functions of the executive officer are described "as those of a chief of staff."[19] Similiarly, the individual responsibilities of the personal, coordinating and special staff members are described as generally the same as those of the corresponding higher headquarters. To understand the individual functions and responsibilities of each staff member at the tactical level, one must review the list of responsibilities listed under each individual general staff member and select those most applicable. Emerging doctrine FM 101-5 (Final Draft) Command and Control for Commanders and Staff repeats this same approach in describing the individual responsibilities of staff members. This document does however, incorporate a single change by adding the respective subordinate designation to the listing of the higher staff functions (i.e. G-1 (S-1)). Thus, this approach of describing individual staff responsibilities creates a doctrinal gap in staff operations at the tactical level.

Although, many of the individual responsibilities of the general staff are directly transferable to the tactical level, several individual staff responsibilities at the tactical are ommitted. As a result, "unit staffs frequently did not recognize staff deficiencies until after rotations at the CTCs."[20] The U. S. ArmyResearch Institute (ARI) was commissioned to author a reference document spanning the observed gap in battle staff doctrine. In May 1993 ARI published The Commander's Battle Staff Handbook withGarrison Duties. This document "describes the core duties of battalion staff members and key slice liaison officers on the battle staff."[21] This document organizes each battle staff function and responsibility under seven subheadings. These subheadings are introduction, assets, primary duties, staff coordination, planning, preparation, and execution. Due to the length

limitations of this monograph, the position of executive officer will be examined for the purpose of providing a doctinal analysis of this document with current battle staff doctrine.

The introduction section of this handbook describes the specific role and responsibility of each battle staff member. The executive officer unlike his higher counterpart is second in command at the tactical level. As such he must be prepared to assume command at any time. Additionally, the battalion executive officer is responsible for the operation of the unit's command post and logistical system.

The second section discusses those resources available for executing the duties of the assigned staff position. For example, the executive officer is directly responsible for the coordination and synchronization of each staff member within the batttle staff. As such he is afforded access to each battle staff member and those resources which support their respective battlefield operating system to facilitate coordination. "Additionally, any special staff and attachments are responsible to the XO during the staff planning process" to insure a sound tactical plan is developed to support the commander's intent.[22]

The primary duties of the staff position are discussed in the third section. In this section those areas for which the staff member is primarily responsible are listed in detail. Many of the primary duties for the executive officer are directly transferable from those of a chief of staff. However, there are several primary duties of significant importance which are not found in FM 101-5. As the staff officer responsible for the overall synchronization of the batttle staff, the executive officer must also: "1) assemble and supervise the staff during the decision making process ensuring a coordinated and synchronized plan, 2) establish timelines for planning, 3) establish required liasions, 4) ensure information flow between the staff and commander on recommendations and decisions occurs, 5) monitor

the overall battle and supervise planning of future operations, 6) maintain the readiness of the battalion and 7) provide for battalion logistical support."[23]

Section four addresses staff coordination. This portion lists in specific detail those staff members with which a staff member must have an open interactive flow of information and exchange of ideas to insure effective command post operations. The executive officer is " the primary synchronizer of staff actions, both in garrison and in the TOC."[24] The XO insures the coordinating and special battle staff members assist the commander by "coordinating the plans, activities and operations of command."[25] More importantly, the XO facilitates and oversees the integration of the battle staff members and their respective battlefield operating systems.

The planning section outlines those actions and activities to be performed by each respective staff member during the planning process. During this phase of command post operations, the executive officer "ensures staff responsibilities and tasks are clearly assigned and match capabilities."[26]Additionally, the XO uses mechanisms such as briefbacks, rehearsals and frequent interactive communication to insure effective staff coordination. Finally, unlike the chief of staff's responsibilities listed in FM 101-5, the XO performs the following additional key tasks: "1) reviews the area of operations and interest, 2) analyzes the acceptable levels of risk, 3) analyzes time for planning and preparation, 4) develops the restated mission, 5) directs the staff in the decision making process, 6) develops a detailed timeline and 7) insures all staff are involved in the mission analysis process."[27]

The preparation section addresses those products and actions which each battle staff member must complete to insure effective functioning of the battle staff during command post operations. During preparation the XO continues to supervise the staff to

ensure that the plan as developed is "executable, coordinated and complies with the commander's intent."[28] The XO also reviews all staff products and takes the lead in developing the synchronization tool for the operation. Time management becomes the XO's primary focus during this phase of tactical operations. By ensuring the staff adheres to the established timeline, the XO is able to make available those staff products required by the commander for tactical decision making.

Finally, the section on execution provides a detailed explanation of those staff responsibilities during the execution of tactical operations within the command post. Unlike the chief of staff, the battalion executive officer may be positioned in either the main battalion command post or the alternate command post based on the commander's command and control plan. Irregardless of location, "the XO monitors the battle, prepares for future operations and is ready to assume command if required."[29] These unique responsibilities of the battalion chief of staff (XO) are not found in current staff doctrine FM101-5.

The second doctrinal category of staff responsibilities as outlined in FM 101-5 is known as common functions. There are four doctrinal common functions. These functions are providing information, making estimates, making recommendations and preparing plans and orders.

When providing information " the staff collects, collates, analyzes and disseminates information that flows continuously into the headquarters."[30] This processing of battlefield information has the most significant impact on the commander's ability to make sound tactical decisions in focusing combat power. To perform this function all staff officers:

"1) collect information from all sources , 2) collate and analyze informatiion into their respective areas and 3) disseminate the latest information available."[31]

Each staff member also produces a staff estimate to assist the commander in decision making. This estimate "consists of significant facts, events, conclusions and recommendations on how available resources can best be used."[32] These estimates are then used collectively to select a feasible course of action for further development into a tactical plan.

"The staff also makes recommendations to assist the commander in reaching decisions."[33] These recommendations may be presented in written or oral format. Staff recommendations are also made among battle staff members. Each of these recommendations are the result of careful analysis of feasible alternatives by each staff member based on the best information available. Finally, when formulating the recommendation , the staff officer's "preparation includes coordination with other staff officers whose area of interests will be affected by the recommendation."[34]

"The staff prepares and issues plans and orders to carry out the commander's decisions, ensuring coordination of all necessary details."[35] Each staff officer prepares and authors their respective part of the plan by battlefield operating system. These elements are then combined into the final order and submitted by the XO to the commander for final approval. To insure these plans and orders are executed properly the staff assists the commander through staff supervision. Staff supervision "is accomplished through analysis of reports, messages and staff visits." "Staff supervision relieves the commander of much detail, keeps the staff informed of the situation , provides the staff with information needed

to revise estimates and provides progress reports to the commander as plans and orders are implemented."[36]

FM 101-5 (Final Draft) Command and Control for Commanders and Staff, addresses common staff functions with several doctrinal changes. These changes are based on the underlying premise that the "staff specifically functions as a single cohesive unit...a professional team."[37] It emphasizes the need for each member to know not only his own functions and roles, but those of the other battle staff members as well. By performing common staff functions effectively, the staff is able to assist the commander in reducing the amount of uncertainity facing the unit. The four common staff functions introduced by this emerging doctrine are: "providing and sharing information, making estimates and recommendations, preparing plans and orders and monitoring execution."[38] The common functions of making estimates and recommendations and preparing plans and orders remained unchanged.

The function of providing and sharing information as addressed by this draft document merely reiterates the same information as discussed in FM 101-5. Although it adds sharing to the title of the function, it fails to address this critical aspect of battle staff functioning. It directs that information be analyzed and condensed pertaining to each respective field of interest.[39] As a result information becomes stove piped in battlefield operating system functions. There is no interactive flow of information, necessary for the staff to function as "a single, cohesive unit." Additionally, this document fails to consider adequately the importance of information analysis. Information analysis is essential to providing the commander useful visualization. For example, effective information provides

the commander with the effects and implications of observed changes. These ommissions in emerging doctrine contribute to the inability of staffs to develop the battlefield image.

The common function of monitoring and controlling execution is merely the renaming of staff supervision as a new common staff function from current doctrine. This function lacks an in depth description of the performance of battle staff duties. It does not address developing a mutually shared image of the battlefield for the commander. This ommission in current and emerging doctrine is the foundation for today's problem of battle tracking within battalion command posts.

TEAMWORK

The Army's keystone doctrinal manual, FM 100-5 Operations "links the Army's roles and missions to the national military strategy , of which power projection is a fundamental principle"[40] Force projection operations are characterized by a mixture of deployed forces and staffs assembled to meet the requirements presented by the diverse number of missions within the continuum of war. To span this continuum, tactical units must have an effective battle staff to support the commander in the execution of these operations. To support the commander "staffs must operate on a team basis."[41]

Command posts are organizational structures designed to operate effectively during emergency situations. "The smooth functioning of the command post is critical in any combat operation."[42] As the core element of this organizational structure, the battle staff must operate as a team to facilitate the effective operation of this organization within an enviroment characterized by a continuous flow of uncertainty. "Teamwork is defined as activities performed by team members in such a manner that each activity is coordinated with every other and contributes to superordinate goals of the unit or supports the activities

of other members."[43] Teamwork within a battle staff provides the foundation upon which staff integration and interactive information sharing can occur.

"A team consists of at least two people, who are working toward a common goal, objective, mission, where each person has been assigned specific roles or functions to perform and where completion of the mission requires some form of dependency among the group members."[44] The battle staff is such a team. The various members are working toward an endstate established by the commander. To accomplish this endstate each member performs functions within their respective battlefield operating system to assist the commander in focusing combat power. Finally, each member of the battle staff relies upon other members to synchronize the tactical operation through cooperation and coordination of their respective systems.

The battle staff performs several common functions. These functions include: 1) solving operational problems and supervising ongoing operations; 2) making tactical decisions; 3) monitoring activities; 4) coordinating and integrating activities so that they contribute efficiently to unit's objectives; and, 5) coordinating activities with higher and adjacent units.[45] Although staff responsibilities are delineated by battlefield operating system, each member must coordinate actions which overlap these systems as a team in order to execute assigned missions effectively. Thus, to function effectively as a team, "it is imperative that the personnel within the command post be similiarly trained and have a common understanding of the operation."[46]

Various factors contribute to the development of teams and team relationships among the members of an organization. "Common membership in a particular unit, the possession of a common terminology, the sharing of a common doctrine, common

problems with regard to the current operational situation of the unit and common understanding of its significance, the possession of common means and channels of communication, the fact of frequent association and shared values regarding the necessity for working as a team...these are all factors which enhance the development of teamwork."[47]

Unfortunately, the presence of all or several of these factors will not assure effective teamwork. Dr. Olmstead in his study Battle Staff Integration, identifies three determinants of teamwork. These determinants are "1) superordinate objectives which are meaningful, clear and desired by all, 2) a system of potential rewards for contributing to team effort and 3) an organizational system which provides effective operating procedures and efficient patterns of communication among members."[48]

"Superordinate objectives are those goals which are equally compelling for all and cannot be ignored, but which cannot be achieved by the efforts of one individual or group alone."[49] Superordinate objectives are those which a battalion task force establishes to accomplish a tactical mission. To accomplish these objectives, coordination among members of the organization is essential. Teamwork depends upon the recognition, acceptance and commitment "to these objectives by each member of the battle staff."[50] The use of unclear objectives results in poor coordination among the battle staff and the non-synchronization of combat multipliers on the tactical battlefield.

A system of rewards fosters teamwork and cooperation. "Cooperation is most likely to develop when members can receive significant satisfaction from behaving cooperatively and where competitive behavior is not rewarded."[51] The use of rewards within a battle staff should focus on rewarding the group for forward progress as oppossed to the rewarding of

an individual for achievement of personal goals. This system encourages motivation on a collective level within the staff which is essential for establishing a team.

"No matter how high the motivation to cooperate and coordinate, teamwork will not result unless member efforts are effectively channeled."[52] Thus, the development of an effective team requires an organizational system which provides a means by which the efforts of the team may be coordinated and structured. An organizational system "refers to those practices and procedures used to perform such functions as giving direction, assigning responsibilities, exchanging information, making decisions and coordinating within a battle staff."[53] This system must insure that each battle staff member is provided the appropriate information, guidance and support necessary for them to perform their roles effectively both individually within their battlefield operating system and collectivelly as a team.

A final aspect of teamwork is cohesion. Cohesion is " the willingness of group members to work together toward a common goal, to overcome frustrations or endure pain to accomplish that goal."[54] In order for a battle staff to develop and perform as an effective team, cohesion must exist within the group. Dr. Olmstead concluded in his study on battle staffs that four conditions are necessary for the development of cohesion within a battle staff. These conditions are "1) common objectives conducive to cooperation, 2) shared experiences, 3) a stable and efficient organization and 4) shared norms of performance and behavior."[55]

As mentioned previously, the establishment of clear superordinate goals requires the coordinated efforts of all members of the battle staff. These common objectives are shared by all battle staff members and are essential for the generation of cooperative

interaction among battle staff members. Cooperative interaction occurs within a group which possess shared experiences and norms. Shared experiences serve two important purposes. They permit personnel to become familiar with each other and their ways of working while simulataneously providing them with a common frame of reference for problem solving as a team.[56] A stable and efficient organization permits people to work together long enough to develop common perceptions and values. Replacement and reassignment policies which result in frequent movements of staff members into and out of the battle staff are not conducive to establishing cohesion or teams.[57] Shared norms are "attitudes and codes of behavior held in common by all members of the group."[58] From a team's perspective shared norms are important because of the influence they have on the actions of individuals within the group. Shared norms govern the staff's actions and serve as a gyroscope balancing its performance in the command post. These norms are direct products of the group's communications. Finally, effective interaction within the battle staff insures increased cohesion of the group and the increased effectiveness of the battle staff as a team.

Thus, clear superordinate objectives and a system of potential rewards help to focus the battle staff on common goals and motivate the members of the command post to cooperate and coordinate. These objectives and rewards also create an enviroment which down plays competition and thus reduces the need for internal rivalry. Finally, the battalion command post establishes standard operating procedures and drills to channel the staffs efforts in order to achieve operational effectiveness as a team on the battlefield.

Observations from the combat training centers indicate that the majority of battle staffs are not teams at all. "Rather they are collections of individual relationships with the

unit commander in which each subordinate concerns himself only with his self-interests and those of his own" battlefield operating system.[59] Under these conditions, teamwork is impossible. As a result the battle staff is unable to produce products with sufficient detail to synchronize the execution of tactical operations. In many instances subsequent refinement is done in relative isolation by individual staff members which in turn negatively impacts on synchronization and development of shared situational awareness of the battlefield.[60] Thus, to facilitate the synchronization of tactical operations, the battle staff must be trained, structured and organized as a team. The concept of teamwork must be adopted as a common staff function in our doctrine in order for the staff to be capable of developing shared situational awareness of the battlefield with the commander.

III INFORMATION MANAGEMENT

Today's battlefield is characterized by fast moving forces and rapidly changing situations in a complex environment. Consequently, changes within the world order coupled with advancing technologies have a great impact on the acquisition, processing and dissemination of information by tactical command posts. This became evident to our armed forces during Operation Desert Storm. The use of advanced technologies together with the use of joint and combined assets brought about a swift and decisive victory over the forces of Iraq. "Never before has the need for horizontal and vertical sharing of information on the battlefield been more critical."[61] Today one of the greatest challenges that a battle staff faces is the management of increased volumes of information flowing into the command post. The performance of this common staff function has the most significant impact on the commander's ability to make sound tactical decisions. By processing this information accurately and developing a picture of the battlefield through effective information sharing and interactive information flow, the battle staff is capable of assisting the commander in focusing combat power decisively.

DOCTRINE

Current doctrine within FM 101-5 addresses the staff responsibility for information management as one of collecting, collating, analyzing and disseminating information. Staff members collect information from various sources and maintain adequate facts "so that relevant information is at hand."[62] The information received is then analyzed by each staff member in their respective battlefield operating system. Prior to presenting this information to the commander, doctrine dictates that the information be

"condensed and its significance, reliability and completeness be assessed."[63] To prevent overburdening the commander with information, the staff acts as a filter and provides the commander with only that information necessary for sound decision making. " To do this, each staff officer must have a basic understanding of the information needs of all staff officers."[64] Finally , staff members disseminate the latest information available to the commander, staff, higher, adjacent and lower units.

Emerging doctrine in FM 101-5 (Final Draft) and the Battle Command Battle Laboratory's Leadership and Decision Making for War and OOTW has expanded the doctrinal discussion of information management. FM 101-5 (Final Draft) takes a decentralized approach by dictating that each commander must determine how to employ his staff to manage information within their command post. The XO; however, is identified as the command post information manager responsible for " monitoring the staffs duties, functions and responsibilities in generating and processing information and its flow" into and out of the command post.[65] There is no mention of internal staff responsibilities for crosstalk or interactive information flow required for mutual situational awareness of the battlefield.

Emerging doctrine classifies information into the overall categories of specific and broad. Specific information "has a direct and highly defined use" while broad information "consists of both tangibles and intangibles which may have direct or indirect application to answering the commander's information requirements."[66] FM 101-5 (Final Draft) also identifies three channels of communication through which information flows. These channels are command, staff and technical. As information flows through these channels it is further segregated into three specific categories for management. These

categories are routine, commander's critical information requirements (CCIR) and exceptional. "Routine information is standard repetitive information essential for day to day operations."[67] Critical information is that required information which affects the execution of tactical operations. The commander identifies those critical information requirements based upon the mission assigned and prior experience. The use of CCIR allows the commander "to define his information needs which, in turn, focuses the efforts of the staff in receiving, processing and filtering information."[68] Using CCIR ensures that information transmitted to the commander is meaningful and readily recognized as critical to his mental vision of the situation."[69] Exceptional information is specific and immediately vital information which directly affects the success of current operations by signaling the occurrence of one or more unpredictable, extraordinary events."[70] FM 101-5 (Final Draft) describes this type of information as commander's business only. This information is to be transmitted immediately by the battle staff to the commander for action. Although this category of information is not published, it must be recognized by the staff as vital information.

FM101-5 (Final Draft) also offers some solutions to problems encountered in information management. For the most part these recommended solutions are mechanical in nature. There is however, a brief discussion of cohesive units which may emerge due to an environment which permits informal communications and the free flow of information. "Such an environment reduces personal sensitivities and improves the quality of communications."[71] Unfortunately, the discussion which infers teamwork ends here.

FM 101-5 (Final Draft) also identifies the battlefield operating systems as both mental and physical systems which may be used for information management. This document suggests that these battlefield operating systems may be used as information management tools by the staff in either a mental or physical context to filter, analyze and disseminate information. This explanation is limited in scope. It fails to address the interrelationships existing among these systems and how linkages across functions facilitate information management. Emerging doctrine needs to address these issues. Specifically, it should address the existing linkages between battlefield operating systems and how a staff may leverage them to manage information effectively. By taking a general systems thinking approach doctrine would better guide staffs in meeting the necessity to look globally when operating in an environment of dynamic complexity.

The Battle Command Battle Laboratory is another source of emerging staff doctrine on information management. A recently published document entitled Leadership and Decision Making for War and OOTW reiterates the same changes made by the draft FM 101-5, but also introduces another aspect of information management. This aspect was adopted from a 1989 research report completed by the RAND Corporation for the Army entitled Understanding Commander's Information Needs. This research offers a solution to the problem of information overload within command posts. The study focuses on a conceptual framework and recognizes that the situational environment shapes the commander's information needs. Thus, this study is unlike previous studies which "had as its end product lists of commander's critical information."[72]

This study presents a theory of information management based on information flow. There are three modes of information exchange. These modes are pipelines, alarms

and trees. "The pipeline mode transmits information according to a set order and established format."[73] This information is predetermined information transmitted by either reports or briefings. "The alarm mode signals the occurrence of one or more exceptional events."[74] The alarm mode is a mechanism used to filter through volumes of information in order to present only those pieces which are critical to the commander's plan and require his immediate action for correction or decision. "Alarms are generally time sensitive and a priority of action for the staff."[75] Finally, the tree mode "seeks to gather information either prior to a problem occurring or once an alarm has been activated."[76] This mode is a demand-pull search for information. Essentially once a specific problem is discovered, information is collected from numerous sources in order to rectify the situation. "It becomes the prime resource for the retrieval of information for critical decisions."[77]

As one might imagine, confusion over what information is considered critical in making key decisions may occur within these modes. Battle laboratory doctrine introduces CCIR as a mechanism which the commander uses to "focus the efforts of the staff on essential information that he needs to make informed timely decisions."[78] The battle laboratory concludes that CCIR reduce confusion over which information is really critical within these modes.

CCIR consists of three supporting information elements. These are friendly forces information requirements, priority information requirements and essential elements of friendly information. CCIR and its supporting elements may serve as a mechanism to reduce confusion over criticality of information; however, it does not facilitate the sharing of information across staff functions. To be an effective filtering mechanism,

CCIR must be applied to synthesized information created from an interactive flow of information across staff functions and image sharing. To apply CCIR to information which is a product of a single mode results in incomplete responses to the information requirements established by the commander.

The use of pipelines, alarms and trees to manage information without a mechanism to cross fertilize this information within the staff prevents the command post from developing a shared battlefield image. As a result, critical events are often overlooked. The next section provides an assessment of this issue from a doctrinal and training perspective.

ASSESSMENT AND FIELD OBSERVATIONS

Both current and emerging doctrine are incomplete in addressing information management within the tactical command post. FM 101-5 presents an approach to information management which facilitates the stove piping of information by battle staff function. It does little to explain the requirement for lateral crosstalk or interactive information flow within the battle staff. This interactive flow of information is necessary for the development of a shared battlefield image. Emerging doctrine in the draft FM 101-5 and the battle lab pamphlet expand the discussion of information management; however, they also present a stove piped approach to information management through the use of categories and modes. These doctrinal sources also fail to expand upon the concepts of cohesion and teamwork within the command post which they link to successful information management.

Emerging doctrine as illustrated in the battle command pamphlet is incomplete. This doctrinal reference has only adopted a portion of Dr. Kahan's theory of information

management. It has omitted the two most important features; interactive information flow and image sharing. Current and emerging doctrine continue to depict the flow of information as linear in nature, flowing back and forth from commander to staff. "While linear flow is a widely accepted model of information flow, a model that is closer to reality in well functioning command posts is one in which flow is not linear but interactive."[79] In interactive information flow each passage of information is part of a feedback loop between the members of the battle staff. This systems approach to information flow facilitates the lateral, vertical and horizontal flow of information while simultaneously allowing each battle staff member to view staff interrelationships.

Even though the staff is often functionally partitioned so that members can focus on their battlefield operating system, it cannot effectively operate without this type of dialogue.[80] The interactive flow of information is necessary to shape a picture of the battlefield. In forming this picture, "it is important for the commander to know that his image of the battlefield is understood as it is for him to have that image."[81] Thus, when the communication of information among a staff is less structured as in a team environment, the battle staff is able to share information across functions and develop a shared image of the battlefield with the commander.

The second aspect of Dr. Kahan's theory is image sharing. The commander creates an initial image of the battlefield through his intent. Once this is relayed to and understood by the staff they have a "shared image". This image is further refined through an interactive flow of shared information within the command post. This battlefield picture may easily become distorted if the staff misinterprets the intent, the intent is ambiguous or if the flow of information fails to be a source of staff interaction. Any of

these three instances can cause the projection of a false image of the battlefield. The false depiction of the area of operations prevents the commander from making informed decisions.

The Army Research Institute (ARI) conducted a research study in 1980 entitled Information Flow in Battalion Command Groups . The focus of this study was on intragroup communication within the command post. In this study, Dr. Kaplan examined the ability of staff members to share information across battle staff functions. "The data from 13 groups showed that a substantial amount of information was lost in the process of communicating and remembering."[82] In fact information shared and remembered varied from 17% to 80% throughout battle staff communication channels. In a 1992 ARI study Dr. Fallesen observed the same low percentages and concluded that "battle staffs must share any information identified that may affect another staff member's area."[83] Thus, the sharing of information across functions and battlefield operating systems is essential to battle success.

Field results from the Army's combat training centers reveal a significant deficiency in the ability of battle staffs to manage the flow of information and develop a mutually shared picture of the battlefield. In a study conducted by the RAND Corporation at the National Training Center (NTC), it was observed that in 67% of the battles surveyed, information flow across, up and down within the command post was weak and had significant effect on the outcome of the battle.[84] Additionally, a review by this author of the Take Home Packages[85] for rotations at the NTC from 1989 to 1994 revealed similar findings.

In July 1994, an independent research study was completed by this author on battle tracking in tactical command posts. This study concluded those command posts which had an interactive system of information flow were able to create a shared image of the battlefield and provide the commander with the information necessary to mass combat power at the decisive point on the battlefield. Those which did not, resulted in the commander accepting risk and the unsuccessful execution of assigned missions.

These observations and research findings conclusively find battle staffs dysfunctional in the management of information and development of shared images of the battlefield. This dysfunctionality can be linked to a gap in both doctrine and training. Current battle staff doctrine does not address information management from a general systems thinking approach. Information management is conducted through a linear process and does not facilitate the sharing of information across battle staff functions. The absence of a systems approach does not allow the battle staff to understand the interrelationships among the battlefield operating systems prevent the interactive flow of information necessary for mutual situational awareness. Consequently, key information goes overlooked and recognition of emergency situations lag behind the actual events.

The second area contributing to this dysfunctionality is the lack of staff training. Staff members "must be educated in the art of constructing, understanding and communicating images." Battle staff members must also be trained in the use of interactive information flow and sharing. To accomplish this, battle staff members must be educated in the functions of a staff officer. The current education system in the Army offers this training to captains at Combined Arms Service School at Fort Leavenworth. Unfortunately, this training is usually received after their first assignment to a battle staff.

Non-commissioned officers must be selected for the Battlestaff Course and allocations are limited. These critical members of the battle staff also need to receive this education earlier in their careers. Battle staffs must be molded into teams and trained in the performance of common staff functions. In 1989 at the NTC it was observed that 17 out of 26 task force staffs were not adequately trained and had significant problems functioning as a group.[86] Again in 1993 and 1994 observations revealed 9 out of 15 staffs had difficulty functioning as a team. The lack of cohesion within the battle staffs observed was clearly a result of the members being inexperienced in the functions of battle staffs within a tactical command post.

Changes to both staff doctrine and training must be instituted to correct this dysfunctionality in information management. Without this corrective action, the ineffective flow of information within the tactical command post will continue to create uncertainty in the execution of tactical operations. This absence of an interactive exchange of information prevents the battle staff from accurately monitoring and analyzing the current battle. As a result patterns of activity can not be assembled into a truly shared image of the battlefield.

IV BATTLE TRACKING

The battle staff helps the commander see the battlefield and focus combat power. It does so through, battle tracking. Battle tracking is a command and control mechanism used to create and refine mutual situational awareness of the tactical battlefield. Battle tracking is an integrative process of receiving, processing, analyzing and monitoring critical battlefield information and its subsequent development into a battlefield picture by the battle staff.

Battle tracking facilitates the exercising of command and control on the tactical battlefield. "Command means visualizing the current and future state of friendly and enemy forces and then formulating concepts of operations to accomplish the mission."[87] The effective tracking of battlefield events and information by the battle staff assists the commander in visualizing the battlefield through the picture they create. "Control monitors the status of organizational effectiveness and identifies deviations from set standards and corrects them."[88] The battle staff also assists the commander in the control of tactical operations through battle tracking. By monitoring the battlefield the battle staff is able to appraise the current battlefield and forecast the future battlefield for the command. Monitoring through tracking the battle is used to compare what subordinate units are actually doing against the commander's intent and the plan as visualized in the order or synchronization matrix. This comparison may suggest that corrective action may be required by either the staff or the commander. When a deviation occurs both the commander and staff must "have a clear vision of what success will look like in a particular situation and how much deviation can be tolerated."[89] Additionally, by monitoring the current situation the staff can predict "what may likely happen in the near future, so future

opportunities, problems and missions may be anticipated and proper plans developed for action when the time is right."[90] This enables the commander to retain effective control by efficiently allocating resources and employing combat assets to those elements responsible for accomplishing the assigned mission.

As discussed previously the purpose of battle tracking is to create a shared image of both the current and future battlefields. This image is initially developed through the commander's intent. The staff begins the interactive process of collecting , processing and analyzing of battlefield data to meet this intent. As a concept of the tactical operation is developed during the decision making process, the staff continues to process data to further refine this image. This interactive flow of information across functions must continue through the execution phase of the tactical operation so that the commander may make informed decisions and focus combat power decisively. Finally, battle tracking by the staff allows the commander to maintain freedom of action by knowing the disposition of enemy and friendly forces in relation to the area of operations.

The receipt of information and its conversion into timely and accurate intelligence during the execution of tactical operations has the most significant impact on the battle staff's ability to create a shared image of the battlefield. The battle staff begins this process by recording and arranging information into groups of related items as it is received from their respective battlefield operating system channel. Next the battle staff evaluates the information received for pertinence, reliability, accuracy and timeliness. Finally, each battlefield operating system staff member analyzes the information to determine the significance of the information received relative to that information already known. At this

point the staff may begin to make deductions about the meaning of the information received and determine how it applies to both the current and future battlefield situations.

Recording information provides a data base for evaluation and analysis. The recording must be timely and accurate so that sound deductions may be made during the analysis phase. The recording and display of data can be accomplished through several methods. The most common are journals, situation maps, workbooks and charts. These methods serve as mechanical mediums of communication for the tactical command post.

Battle staffs must aggressively pursue, accurately record and immediately share information received. Inaccurate or incomplete sharing of information erodes the staff's ability to completely analyze and formulate sound recommendations for the employment of forces. The battle staff must share information with each other in order to fill the gaps of the battlefield picture. Unit staffs that fail to share and pass data through an interactive flow cannot provide the commander with the intelligence he requires to make informed decisions. In a research study conducted by the ARI in September 1993, researchers discovered that command and control deteriorated in units in which the staff did not exchange data. Additionally, "battle success was found to relate directly to battle staffs spending more time acquiring and understanding the information recorded."[91]

Analysis consists of assessment, integration and deduction. During assessment, the staff determines the significance of the information received. This assessment takes the information received and selects that which is most applicable to the unit's mission and commander's intent. To avoid overloading the commander and respective staff members during integration, the battle staff must be concise when sharing assessed information. The integration and interactive flow of this assessed information enables the battle staff to

visualize the battlefield and create a shared image for both commander and staff. Deductions are then made and provided to the commander in the form of accurate and timely intelligence. This enables the staff to form a logical picture and hypothesis of the tactical situation. This shared battlefield image reduces friendly vulnerabilities and the amount of risk a commander must take in a tactical operation.

People do not like to be wrong, so they avoid making forecasts for the commander but rather brief lists of information. ARI cited that the failure to present the commander with interpretations of analyzed information led to an uncoordinated effort within the unit area of operations. Likewise, this author observed client unit staffs at JRTC only partially battle track and process information which resulted in briefed lists of data to the commander. In each instance, the unit was unsuccessful in accomplishing its assigned mission.

The Army's combat training centers have determined from rotational observations from 1989 to present that a deficient trend in battle tracking exists within battalion command posts. Tactical units are consistently ineffective in monitoring the execution of tactical operations. This inability of tactical command posts to accurately track the battle has resulted in the unsuccessful execution of assigned tactical missions. The failure of command posts to properly track the battle through the process previously discussed, results in an incomplete and inaccurate image of the battlefield. This faulty depiction of the area of operations prevents the commander and staff from making informed decisions and results in increased risk taking.

In a recent battalion command and control study conducted by the RAND corporation at the NTC, "survey data revealed the TF staffs have difficulty tracking the

battle 67% of the time."[92] As a result, recognition by the command post of emergency and threat situations often lagged behind the actual occurrence of the situation. Hence, crisis situations requiring direction and control went unnoticed until it was too late to rectify the situation. Similarly, "a 1992 analysis of NTC, JRTC and CMTC trends reported that 59% of the battalion task forces observed did not track the battle accurately."[93] Finally, this inability to battle track by battalion command posts during the execution of tactical operations creates increased uncertainty for the accomplishment of assigned tactical missions.

V BATTLE STAFF INTEGRATION

> Today, there is mounting evidence that maximum effectiveness can be achieved only when a battle staff addresses directly the quality of its organizational functioning and develops capabilities that will enable it to maintain functional integrity under the stress of battlefield pressures.
>
> Dr. Joseph Olmstead
> Battle Staff Integration 1992

The concept of staff integration is not found in any doctrinal reference. However, this concept is often referred to in combat training center after action reports. In fact from 1992 to present, there have been 899 observations about staff integration by observer controllers. So what is this concept and how does it apply to battalions? This section will introduce this concept and explain its potential application to battalion battle staffs in the execution of tactical operations.

The concept of staff integration was first developed in 1992 by Dr. Joseph Olmstead in a research study entitled Battle Staff Integration. The study established staff integration as a conceptual framework for understanding and addressing battle staff functioning within a combat organization. This concept was developed to "provide military practitioners with concrete guidance for implementing staff integration so as to develop and direct effective battle staffs."[94] Staff integration is achieved through the melding of structure and function with the notion of functional competence. "Integration occurs when staff members are committed and hold shared values and common norms about the performance of their respective roles."[95] In other terms integration may be viewed as that cohesiveness which develops among the members of the battle staff within the command post. The higher the level of cohesion within the battle staff the stronger the integration of

staff's structure and functions. As a result, a "battle staff is capable of dealing effectively with a range of operational problems"[96] across a continuum of possible tactical missions.

Battle staff integration is " the force which melds together the roles, attitudes and activities of members, and is manifested by the integration of group structure and function."[97] The purpose of battle staff integration is to develop an organization capable of effectively operating as a team in environments of dynamic complexity. The more effective the battle staff can function as a team the more effective the commander will be in focusing combat power decisively on the battlefield. It is a developmental process. "Integration develops within a group of people starting from a mere collection of individuals with different perceptions, motivations and attitudes and developing into a team with common goals, attitudes and values."[98] Staff integration cannot be achieved through a single inoculation of this concept, rather it must be propagated over time. Integration is developed through the enhancement of necessary organizational conditions and necessary developmental activities.

Necessary organizational conditions required for integration and teamwork are: 1) a clear role system, 2) common superordinate goals, 3) reward system for teamwork and 4) a stable and efficient organizational system. Necessary organizational conditions are conducive to the growth of cohesion and teamwork within a battle staff. These conditions establish an organizational culture which fosters unity and effective operations. A clear role system exists when " each member of the battle staff knows both his role and those of the other members."[99] Common superordinate goals serve as the objectives of the parent organization. They are goals which are equally important for all and cannot be accomplished by the efforts of one individual alone. A rewards system for teamwork

acknowledges the successful efforts of a highly cohesive group. It contributes to team welfare as a way of life. Finally, teamwork requires a stable and efficient organizational environment. "Sufficient stability among personnel within the staff is required for the development of common values and norms."[100] As observed at the NTC, personnel turbulence is one aspect which continues to effect staff cohesion. [101]

"Necessary developmental activities are those training and developmental activities needed to equip battle staff members to function as members of a viable cohesive team."[102] The necessary developmental activities consist of 1) cognitive role training, 2) experimental training and 3) operations training. Cognitive role training focuses on providing all battle staff members with a full understanding of their respective staff requirements. It also educates each member to perform these roles in a combined effort in order to create an efficient operating team. Experimental training is training designed to provide practical experience under controlled conditions. This type training is currently offered through the Army's combat training center program. Unit operational training is that field training of the battle staff functions conducted at home station. This is currently a weakness as client unit players and observer / controllers continue to agree that homestation training is inadequate to meet the conditions of experimental training at the training centers.[103]

There are four major factors that influence battle staff integration and performance. These factors are roles, goals, norms and group relations. Clear roles serve as the building blocks upon which the staff controls the actions of its members as individuals. Each staff member is linked to the other by the functional requirements of their role. When perceptions of roles are unclear and not shared, the decision making process performed by the staff can not be conducted effectively. Goals ensure the efficient conduct of functions

in a complex environment. "When goals are clear, operational and shared misconceptions, conflicts and wasted efforts are minimized."[104] By focusing these goals toward mission accomplishment the battle staff will function more effectively. "Norms are codes of behavior held in common by all of the team members."[105] They serve to control the spontaneous response and cooperation among staff members during unforeseen situations. For example, standing operating procedures, command post battle drills and established group values regulate the actions of members by providing them with the basis for assessing non-routine situations.[106] Thus, the absence of established norms prohibits effective staff integration. Finally, group relations refers to those patterns of interaction among battle staff members which develop over time. These relations influence how the staff approaches problems and how members are motivated to perform their assigned staff functions. Cohesion is that element which determines the extent of group relations. As cohesion develops within the staff and common perceptions of events and problems evolve into shared perceptions, the closer the staff comes to achieving integration.[107]

Staff integration results in "1) a more smoothly functioning command and control system, 2) adjustment of the unit to changes in the tactical environment with minimum error or wasted effort and 3) maintenance of higher levels of unit effectiveness under the pressures of combat."[108] Battle staff integration facilitates the interactive flow and sharing of information across staff functions. As a result the battle staff is then able to effectively track the execution of operations and develop a truly shared image of the battlefield for the command. Thus, staff integration becomes the key to effective battle tracking within the battalion command post.

VI CONCLUSION

> Uncertainty pervades battle in the form of unknowns about the enemy, about the environment, and even about the friendly situation. While we try to reduce these unknowns by gathering information, we must realize we can not eliminate them. The very nature of war makes absolute certainty impossible; all actions in war will be based on incomplete, inaccurate, or even contradictory information.
>
> FMFM 1

The purpose of this monograph was to examine the problem of battle tracking within the battalion command post. As a result of this research, several conclusions may be drawn. The battle staff is the core element which assists the commander in exercising command and control in the execution of tactical operations. Due to the nature of the modern battlefield each tactical commander will always encounter some degree of uncertainty when making decisions. Through the integrated execution of battle staff functions the commander can reduce this uncertainty to a manageable level and make informed tactical decisions. To achieve battle staff integration several doctrinal and training issues must be addressed. Doctrinal sources do not adequately address the core functions of the battle staff at the tactical level. Individual functions lack the description and detail necessary for staff members to achieve proficiency within their respective staff function. Common functions are also lacking in substance. Although indicated in several places throughout these documents, the concepts of interactive information sharing, staff supervision, monitoring and teamwork lack the intellectual depth necessary for their implementation. Repeated observations from the combat training centers reveal the majority of battle staffs are not teams, rather they tend to be a collection of individuals focused on their respective battlefield operating system. This doctrinal gap contributes to

the inability of staffs to integrate and track the execution of tactical operations. Consequently, our staff doctrine must be expanded to address these concepts and adopt teamwork as a common staff function.

Battle staff members must also be trained and competent in both individual and common staff functions to be effective. The current education system does not adequately address the formal training of branch officers selected to fill battalion staff positions.[109] Research has found that there is no systematic staff functional area training or a strategy which addresses this requirement. However, what is clear is that staff functional area training must precede any assignment to a battalion staff position for the battle staff to function effectively as a cohesive integrated team.

Integration and the establishment of effective teams relies on relatively stable environments. The current level of turbulence in the assignment of battle staff members does not facilitate the implementation of integration or the development of teams. The selective rotation of staff members will reduce the current levels of turbulence within the force and enable commanders to develop cohesive teams.

Finally, by addressing the aforementioned issues the concept of staff integration may be achieved. Staff integration offers a solution to the problem of inefficient battle tracking. Through the propagation of staff integration over time, a staff will develop cohesion, an interactive flow of information and the capability of sharing images of the battlefield. These capabilities enable the battle staff to attain mutual situational awareness of the battlefield and the ability to track the execution of tactical operations effectively. Thus, by achieving integration the battle staff is able to achieve unity of action and reduce uncertainty for the commander during the execution of tactical operations.

ENDNOTES

[1] Susan P. Kellet-Forsyth , MAJ., USA.,Commander's Critical Information Requirements: The Key to a Commander's Battle Image (Fort Leavenworth, KS: United States Army Command and General Staff College. December 1993), 1.

[2] Bruce W. Menning, Bayonets Before Bullets, The Imperial Russian Army, 1861-1914 (Bloomington, MN: Indiana University Press, 1993), 235.

[3] James P. Kahan, Understanding Commander's Information Need (Santa Monica, CA: Rand Arroyo Center,1989), 19.

[4] Edward E. Johnson, Sound Military Decision (Newport, RI: U. S. Naval War College, September 1942), 211.

[5] Joseph A. Olmstead, Battle Staff Integration. (Alexandria, VA: Institute for Defense Analysis, 1992), X-8.

[6] Ibid. , X-9.

[7] James D. Hittle, The Military Staff, Its History and Development (Harrisburg, PA: Stackpole, 1961) , 3.

[8] Olmstead, II-1.

[9] Anthony Zinni and Jack Ellertson, "Scrapping the Napoleonic Staff Model," Military Review, (July 1992) : 83.

[10] Cole C. Kingseed, "The Battalion XO: Leader, Coordinator, Trainer, Logistician," Infantry, (September-October 1993) : 18.

[11] U. S. Army Field Manual 100-5, Operations (Washington, DC: Government Printing Office, June 1993), 2-12.

[12] U. S. Army Field Manual 101-5, Staff Organization and Operations (Washington, DC: Government Printing Office, May 1984), 2-3.

[13] Ibid. , 2-3.

[14] Olmstead, II-1.

[15] Olmstead, II-1.

[16] Olmstead, II-1.

[17] U. S. Army Field Manual 101-5, 2-11.

[18] Ibid. , 3-1.

[19] Ibid. , 2-11.

[20] Thomas J. Thompson and others, eds., Battle Staff Training and Synchronization in Light Battalions and Task Forces: Research Report 1607 (Alexandria, VA: US Army Research Institute, 1991) , viii.

[21] Commander's Battle Staff Handbook (Fort Benning, GA: US Army Research Institute, [1993]) , ii.

[22] Ibid. , 2.

[23] Ibid. , 2-3.

[24] Ibid. , 3.

[25] Ibid. , 3.

[26] Ibid. , 4.

[27] Ibid. , 5.

[28] Ibid. , 5.

[29] Ibid. , 6.

[30] U. S. Army Field Manual 101-5, 4-1.

[31] Ibid. , 4-1.

[32] Ibid. , 4-1.

[33] Ibid. , 4-2.

[34] Ibid. , 4-2.

[35] Ibid. , 4-3.

[36] Ibid. , 4-2.

[37] U. S. Army Field Manual 101-5, Command and Control for Commanders and Staff (Final Draft) (Washington, DC: Government Printing Office, August 1993), 3-83.

[38] Ibid. , 3-83.

[39] Ibid. , 3-84.

[40] U. S. Army Field Manual 100-5, iv.

[41] U. S. Army TRADOC Phamphlet 525-100-1, Leadership and Command on the Battlefield (Fort Monroe,VA U. S. Army Training and Doctrine Command, 1992), 19.

[42] Ibid., 25.

[43] Olmstead, X-8.

[44] Ibid. , IV-4.

[45] Ibid. , IV-9.

[46] U. S. Army TRADOC PAM. 525-100-1, 25.

[47] Olmstead, IV-22.

[48] Ibid. , IV- 23.

[49] Ibid. , IV-24.

[50] Ibid. , IV-24.

[51] Ibid. , IV-24.

[52] Ibid. , IV-25.

[53] Ibid. , IV-25.

[54] Ibid. , IV-14-15.

[55] Ibid. , IV-17.

[56] Ibid. , IV-19.

[57] Ibid. , IV-20.

[58] Ibid. , IV-21.

[59] Ibid. , IV-12.

[60] U. S. Army Center for Army Lessons Learned, CTC Trends: NTC, 1st Qtr 95 (Fort Leavenworth, KS: U. S. Army Combined Arms Command, December 1995), II-28.

[61] Jimmy D. Ross, "Winning the Information War," Army (February 1994): 27.

[62] U. S. Army Field Manual 101-5, 4-1.

[63] Ibid. , 4-2.

[64] Ibid. , 4-2.

[65] U. S. Army Field Manual 101-5 (Final Draft), 6-2.

[66] Ibid. , 6-2 - 6-3.

[67] Ibid. , 6-5.

[68] Ibid. , 6-6.

[69] Ibid. , 6-6.

[70] Ibid. , 6-10.

[71] Ibid. , 6-17.

[72] James P. Kahan, Understanding Commander's Information Needs (Santa Monica, CA: RAND Arroyo Center,1989), 2.

[73] U. S. Department of the Army Battle Command Battle Lab, Battle Command: Leadership and Decision Making for War and Operations Other Than War (Fort Leavenworth, KS: Battle Command Laboratory, 1994), 19.

[74] Ibid. , 20.

[75] Ibid. , 20.

[76] Kevin P. Anastas, MAJ., USA. Information Overload: Tactical Information Processing in Divisions and Corps (Fort Leavenworth, KS: U. S. Army Command and Staff College School for Advanced Military Studies, AY 92-93), 11.

[77] U. S. Army Battle Command Battle Lab, 21.

[78] Ibid. , 20.

[79] Kahan, 26.

[80] Ibid. , 27.

[81] Ibid. , 26.

[82] Ira Kaplan, Information Flow in Battalion Command Groups (Alexandria, VA: U. S Army Research Institute, 1980), vii.

[83] Jon J. Fallesen, James W. Lussier, and Rex R. Michel, Tactical Command and Control Process (Fort Leavenworth , KS: U. S. Army Research Institute, 1992), 20.

[84] Jon Grossman, Battalion Level Command and Control at the NTC (Santa Monica, CA: RAND Arroyo center, 1994), 14.

[85] Take Home Packages are the rotational after action reviews in written form. These reports are authored by the observer controllers for each rotation and provide an in-depth analysis of rotational unit shortcomings. Each report is divided into three sections for each tactical mission. These sections are plan, prepare and execute. Within each section an in-depth review by battlefield operating system of the tactical mission is given.

[86] Grossman, 9.

[87] U. S. Army Field Manual 100-5, 2-14.

[88] Ibid. , 2-15.

[89] Fallesen, Tactical Command and Control Process, 18.

[90] Ibid. , 18.

[91] Jon J. Fallesen, Overview of Army Tactical Planning Performance (Alexandria, VA: U. S. Army Research Institute, 1993),viii.

[92] Grossman, xiii.

[93] Fallesen, Overview of Army Tactical Planning Performance, 35.

[94] Olmstead, S-1.

[95] Ibid. ,IV-7.

[96] Ibid. , S-4.

[97] Ibid. IV-4.

[98] Ibid. , VI-3.

[99] Ibid. , VI-6.

[100] Ibid. , VI-6.

[101] Grossman, 11.

[102] Olmstead, VI-7.

[103] Grossman, 11.

[104] Olmstead, X-10.

[105] Ibid. , X-11.

[106] Ibid. , X-11.

[107] Ibid. , X-12.

[108] Ibid. , S-4.

[109] Thompson, 31.

BIBLIOGRAPHY

BOOKS

Bellamy, Christopher D. The Future of Land Warfare. New York, NY: St. Martins Press, 1987.

Bertalanffy, Ludwig von. General System Theory. New York, NY: GeorgeBraziller,Inc.,1995.

Cimbala, Steven. Soviet C3. Washington, DC: AFCEA International Press, 1987.

Clausewitz, Carl von. On War. eds. and trans., Michael Howard and Peter Paret Princeton: Princeton University Press, 1987.

Cohen Eliot A. and Gooch, John. Military Misfortunes: The Anatomy of Failure in War. New York NY: The Free Press, 1990.

Hemsley, John. Soviet Troop Control. Elmsford, NY: Pergamon Press Inc., 1982.

Hittle, James D. The Military Staff, Its History and Development. Harrisburg PA: Stackpole, 1961.

Huntington, Samuel P. The Soldier and the State. New York, NY: Vintage Books, 1957.

Ivanov, D., Savelvev, V. P. and Shemanskiy. Fundamentals of Tactical Command and Control: A Soviet View. Moscow, 1977 Translated and published by the USAF.

Johnson, Edward E. Sound Military Decision. Newport, RI: U.S. Naval War College, 1942.

Keegan, John. The Mask of Command. New York, NY: Viking Penguin Inc.1987.

Luttwak, Edward and Horowitz, Dan. The Israeli Army. New York, NY: Harper and Row Publishers, 1975.

Marshal , S. L. A. Men Against Fire. Gloucester, MA: Peter Smith, 1978 reprint.

Menning, Bruce W. Bayonets Before Bullets, The Imperial Russian Army, 1861-1914. Bloomington, MN: Indiana University Press, 1993.

Naisbitt, John. Megatrends. New York, NY: Warner Books Inc., 1982.

Senge, Peter. The Fifth Discipline. New York, NY: Doubleday, 1994.

Sullivan,Gordan R. and Dubik James M. Envisioning Future Warfare. Fort Leavenworth, KS: U S Army Command and General Staff College Press, 1995.

Van Crevald, Martin. Command in War. Cambridge,MA: Harvard University Press, 1989.

Waldrop, M. Mitchell. Complexity. New York, NY: Simon and Schuster, 1992.

MONOGRAPHS AND RESEARCH STUDIES

Anastas, Kevin P., MAJ., USA. Information Overload: Tactical Information Processing in Divisions and Corps. School of Advanced Military Studies Monograph, United States Army Command and General Staff College. Fort Leavenworth , KS. AY 92-93.

Badre, A. Selecting and Representing Informaton Structures for Battlefield Data Systems. Alexandria, VA: U. S. Army Research Institute, 1979.

Brown, Jack R., MAJ., USA. Force XXI-- Heavy Task Force Battle Command Dynamics. School of Advanced Military Studies Monograph, United States Army Command and General Staff College. Fort Leavenworth, KS. AY 94-95.

Campbell, Mary. Battle Tracking Techniques in Brigade and Battalion Tactical Operations Centers. Ft . Polk, LA: BDM Management Services, 1993.

Carter, C. Description of Selected Army Staff Functions: Targets for Planning Aids. Alexandria, VA: U. S. Army Research Institute, 1988.

EER Systems. Concept for a Knowledge -Based Commander with a Process -Oriented Staff. Vienna, VA: EER Systems Corporation,1994.

Fallesen Jon, J. Overview of Army Tactical Planning Performance Research: Report 984. Alexandria , VA: U.S. Army Research Institute, 1993.

Fallesen, Jon J., Lussier, James W. and Michel, Rex R. Tactical Command and Control Process: Research Product 92-06. Fort Leavenworth, KS: U.S. Army Research Institute,1992.

Grossman, Jon Battalion Level Command and Control at the NTC. Santa Monica, CA: RAND Arroyo Center, 1994.

Kahan, J. Understanding Commander's Information Needs. Santa Monica, CA: RAND Arroyo Center, 1989.

Kahan, James P. Corps and Division Command Staff Turnover in the 1980's. Santa Monica, CA: RAND Arroyo Center, 1989.

Kaplan, Ira. Information Flow in Battalion Command Groups. Alexandria, VA: U.S. Army Research Institute, 1980.

Kellett-Forsyth, S., MAJ., USA. Commander's Critical Information Requirements: The Key to a Commander's Battle Image. School of Advanced Military Studies Monograph, United States Army Command and General Staff College, Fort Leavenworth, KS. AY 93-94.

McCallum, Marvin, Bittner, Alvah and Badalamente, Richard. Force Level Control System Exercise # 1: Brigade Tactical Operations Center Information Flow and Commander's Critical Information Requirements. U. S. Army Development and Employment Agency, Fort Lewis, WA: 1989.

Moore, Joseph A., MAJ., USA. Gaining Order from Chaos: Will Automation Do It? School of Advanced Military Studies Monograph, United States Army Command and General Staff College, Fort Leavenworth, KS. AY 92-92.

Pennypacker, William S., MAJ., USA. Automation: The Commander's Key to Victory in the Airland Battle or Another Source of Friction. School of Advanced Military Studies Monograph, United States Army Command and General Staff College, Fort Leavenworth, KS. 1987.

Olmstead , Joseph A. Battle Staff Integration. Alexandria, VA: Institute for Defense Analysis, 1992.

Schneider, James J. Vulcan's Anvil: The American Civil War and the Emergence of Operational Art. United States Army Command and Staff College, Fort Leavenworth, KS.1991.

Schneider, James J. The Theory of Operational Art. United States Army Command and Staff College, Fort Leavenworth, KS. 1988.

Speer, William H., MAJ., USA. Back to Basics: A Five Dimensional Framework for Developing and Maintaining a High-Performing Battalion or Brigade Staff. CGSC MMAS Thesis , United States Army Command and Staff College, Fort Leavenworth, KS. 1984.

Thompson, Thomas J., Thopmpson George D., Pleban,Robert J. and Valentine Patrick J. Battle Staff Training and Synchronization in Light Infantry Battalions and Task Forces:Research Report 1607. Alexandria, VA: U. S. Army Research Institute , 1991.

MAGAZINES AND PERIODICALS

Andriole, S. J. "Intelligent Aids for Tactical Planning." Principles of Command and Control Washington, DC: AFCEA International Press.

Beach, Johnston and Scott, Brad D. " Expanding the Limits of Combat Decision Making." Military Review (April 1989) : 55-62.

Berry, Sidney B. "Observations of a Brigade Commander." Military Review (March 1968): 31-38.

Bolger, Daniel P. "Command or Control?" Military Review 70 (July 1990) : 69-79.

Burkett, Jack. "Command and Control: The Key to Winning" Military Review 70 (July 1990): 60-68.

Burkett, Jack. "Tactical Information What You See is all You Get." Military Review 71 (November 1991) : 39-44.

Clarke, Bruce . "Faulty Staff Relations." Military Review (April 1963): 3-6.

Cutshaw, Charles Q. "Controlling the Troops." Jane's Soviet Intelligence Review (January 1991): 28.

Giboney, Thomas B. "Commander's Control From Information to Chaos." Military Review 71 (November 1991): 34-38.

Gieselman, R. E., and Samet, M. G. "Summarizing Military Information: An Application of Schema Theory." Human Factors 22, 693-705.

Gregson, Wallace C. "CPs: Softest Targets on the Battlefield." Marine Corps Gazette (June 1987): 54-62.

Kroesen, Fredrick J. "What Should a Command Post Do?" Army (June 1993) : 32-35.

Kingseed, Cole C. "The Battalion XO: Leader, Coordinator, Trainer, Logistician."Infantry (September-October 1993) : 16-19.

Mazzara,Andrew F. "Out of the Fog." Proceedings, U. S. Naval Institute (February 1993) : 59-62.

McDevitt, Kenneth A. "Why Standardize Command Posts?" Military Review 71 (July 1990): 54-59.

Morgan, Thomas D. "BCTP Training Leaders." Military Review 71 (July 1991): 42-52.

Ross, Jimmy D. "Winning the Information War." Army (February 1994) : 26-32.

Smith, Kevin B. "Combat Information Flow." Military Review (April 1989) : 42-54.

Sullivan, Gordon "America's Army: Into the Twenty First Century." Army (October 1993): 12-22.

Wheatley, Margret J. "Can the US Army Become a Learning Organization?" Journal for Quality and Participation (March 1994): 50-55.

Zinni, Anthony C. and Ellertson, Jack W. "Scrapping the Napoleonic Staff Model." Military Review (July 1992): 83-86.

MILITARY MANUALS, PUBLICATIONS AND GOVERNMENT DOCUMENTS

Army Research Institute. Commander's Battle Staff Handbook. Fort Benning, GA: US Army Research Institute, May 1993.

United States Army Student Text 101-5 (ST 101-5). Command and Staff Decision Processes. Fort Leavenworth, KS : US Army Command and General College, January 1994.

United States Army Combined Arms Center Combat Development Activity (CADA). Division Commander's Critical Information Requirements(CCIR). Fort Leavenworth , KS, 30 April 1985.

U. S. Department of the Army. USMA Department of History The Dawn of Modern Warfare. West Point , NY: Government Printing Office, 1977.

U. S. Department of the Army. Field Manual 22-103 Leadership and Command at Senior Levels. Washington, DC: Government Printing Office, 1987.

U. S. Department of the Army. Field Manual 7-20 The Infantry Battalion. Washington, DC: Government Printing Office, 1992.

U. S. Department of the Army. Field Manual 71-123 Tactics and Techniques for Combined Heavy Forces. Washington, DC: Government Printing Office, 1992.

U.S. Department of the Army. Field Manual 101-5 Staff Organization and Operations. Washington, DC: Government Printing Office, 1984.

U. S. Department of the Army. Field Manual 101-5 Command and Control for Commanders and Staff (Final Draft). Washington, DC: Government Printing Office, 1993.

U. S. Department of the Army. Field Manual 100-5 Operations. Washington, DC: Government Printing Office, 1993.

U. S. Department of the Army. Field Circular 101-55 Corps and Division Command and Control. Fort Leavenworth, KS: U. S. Army CGSC, 1985.

U. S. Department of the Army. TRADOC Pamphlet 525-100-1: Leadership and Command on the Battlefield. Fort Monroe, VA: U. S. Army Training and Doctrine Command, 1992.

U. S. Department of the Army. Battle Command: Leadership and Decision Making for War and Operations Other Than War. Fort Leavenworth ,KS: Battle Command Laboratory, 1994.

U. S. Department of the Army. Battle Command Techniques and Procedures: A Commander's Guide for the Coordination and Execution of Battlefield Operating Systems. Fort Leavenworth, KS: Battle Command Laboratory, 1995.

U.S. Department of the Army. Army Focus. Washington, DC: Government Printing Office, 1989.

U. S. Department of the Army Center for Army Lessons Learned (CALL). The Battalion and Brigade Battle Staff. Fort Leavenworth, KS: U. S. Army Combined Arms Command, July 1993.

U. S. Department of the Army Center for Army Lessons Learned (CALL). Tactical Operations Center (TOC). Fort Leavenworth, KS: U. S. Army Combined Arms Command, May 1995.

U. S. Department of the Army Center for Army Lessons Learned (CALL). CTC Trends: JRTC, 4th Qtr 94. Fort Leavenworth, KS: U. S. Army Combined Arms Command, September 1994.

U. S. Department of the Army Center for Army Lessons Learned (CALL). CTC Trends: NTC, 1st Qtr 95. Fort Leavenworth, KS: U. S. Army Combined Arms Command, December 1995.

U. S. Department of the Army Center for Army Lessons Learned (CALL). CTC Quarterly Bulletin 2nd Qtr FY95. Fort Leavenworth,KS: U. S. Army Combined Arms Command, March 1995.

U. S. Department of the Army Center for Army Lessons Learned (CALL). CTC Quarterly Bulletin 3d Qtr FY 95. Fort Leavenworth ,KS: U. S. Combined Arms Command, June 1995.

RECORDED ADDRESSES

Slim, William J. Sir. " Higher Command in War." a recorded address to the Command and General Staff College, 1952.